RE-ESTABLISHMENT OF THE GENUS *CRITONIOPSIS* (VERNONIEAE: ASTERACEAE).

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Critoniopsis was originally described by Schultz-Bipontinus (1863) as a distinct genus of the Vernonieae, but has been treated in all subsequent literature as a section of *Vernonia* Schreb. The generic name was in reference to the heads which resemble those of the Eupatorian genus *Critonia* P.Browne in their imbricate involucre with deciduous inner bracts. The genus was based on *C. lindenii* Sch.-Bip. of Colombia, and the sectional name has been applied mostly to species of the northern Andes, but a few species have also been included from as far away as south-central Brasil. The most important summary of the group is by Cuatrecasas (1956).

The present need to restore the generic status of *Critoniopsis* derives from the fact that the genus is more closely related to the genera *Piptocarpha* R.Br. and *Pollalesta* H.B.K. than it is to *Vernonia*. The vegetative aspects of the related genera are often similar, and some confusion has resulted. One species described in section Critoniopsis as *Vernonia cuatrecasasiana* Aristeg. has tails on the anthers and has been transferred to *Piptocarpha* by Badillo (1974). A second species, *V. peruviana* Cuatr., has long tails on the anthers of the type specimen, and it probably belongs to *Piptocarpha* also. A microscopic feature noted for *Piptocarpha* by Cabrera (1944) is blunt and often septate hairs on the style, a type of hair that is comparatively rare in the tribe. Examination shows that *Pollalesta* and *Critoniopsis* have such blunt hairs, and that pointed hairs are nearly or completely lacking. The pollen of the three genera is the same, the common *Lychnophora*-type. All three genera have rather smooth coriaceous involucres with deciduous inner bracts. The achenes are mostly hairless, or sometimes sparsely pilose in *Pollalesta*, the thick hairs described in *Critoniopsis pendula* proving to be glands that appear more prominent because of the immaturity of the achenes. The outer achenes are often curved and slightly obcompressed. The surface of the achenes is usually a dull tan color, and the sides are smooth to shallowly fluted. On the basis of the shared characters, the three genera have been placed together in a subtribe Piptocarphinae by Robinson, Bohlmann and King (1980).

In recognizing *Critoniopsis*, some other Andean species have been seen having few to many blunt hairs on the styles. Blunt hairs generally seem more common toward the base of the branches and on the upper shaft, and some may even occur in typical *Ver-*

nonia. The Andean species usually have numerous blunt hairs and usually are shrubs and small trees, indicating closer relationship to *Critoniopsis*. Four species, *V. crassilanata* Cuatr., *V. neogleasoniana* Cuatr., *V. sparrei* H.Robins., and *V. trichotoma* Gleason, all of Ecuador, seem to form a natural group of their own with opposite leaves, more persistent spreading involucral bracts, achenes often with hairs, style hairs without septations, and corollas with the basal tube cylindrical ending abruptly at the bases of the deeply cut lobes. Another species with a similar corolla form is *V. flexipappa* Gleason (=*V. giannasii* Stutts) of southern Ecuador, but it has alternate leaves with closely crenulate margins, and slender single-flowered heads with deciduous inner bracts. *Vanillosmopsis weberbaueri* Hieron. is similar to *Critoniopsis* in corolla and achene form, but the anthers have rather distinct tails. Two final excluded species are the more flexuous or subscandent *V. angustiniana* Cuatr. and *V. aristeguietae* Cuatr. of Colombia and Venezuela which have more persistent inner involucral bracts and pubescent achenes.

Most of the species of *Critoniopsis* can be distinguished by using the key by Cuatrecasas (1956). Two species were not included in the key. *Critoniopsis pendula* was described by Cuatrecasas in the same paper, but was not included in the section, perhaps because of its dense tomentum. The new species, *C. cuatrecasasii* can be distinguished by the heads with 9-11 flowers and the papyraceous leaves with non-bullate upper surfaces.

Critoniopsis Sch.Bip., Jahresber. Pollichia 20-21: 430. 1863.

Vernonia sect. Critoniopsis (Sch.Bip.) Baker *in* Martius, Fl. Bras. 6 (2): 19. 1873.

Shrubs and small trees; stems and leaves often with scales or stellate hairs, rarely densely tomentose or sparsely pubescent; leaves alternate (rarely opposite in *C. pichinchensis*), petioles distinct; laminae mostly elliptical, entire or with some serrulations in distal half. Inflorescence terminal, thyrsoid to corymbose paniculate, with cymose to subcymose branches. Heads discrete, sometimes clustered, 1-11-flowered (-16 in *C. pallida*); involucral bracts rather coriaceous, smooth, strongly subimbricate to imbricate, appressed, inner bracts easily deciduous; corolla with distinct funnelform throat; anther thecae without long tails; anther appendage without glands; style base with slightly broadened sclerified ring; hairs of upper style beginning slightly below base of branches, mostly blunt, sometimes septate. Achenes prismatic to slightly obcompressed, smooth to shallowly fluted, glabrous or with glandular dots, never with setae; carpopodium somewhat turbinate; pappus often with outer series weak or undifferentiated, never squamiform. Pollen of *Lychnophora*-type.

Type species: *Critoniopsis lindenii* Sch.Bip.

The following 26 species are included in the genus at this time.

CRITONIOPSIS BITRIFLORA (Cuatr.) H.Robinson, comb.nov., *Vernonia bitriflora* Cuatr., Bot. Jahrb. 77: 64. 1956.

CRITONIOPSIS BOGOTANA (Cuatr.) H.Robinson, comb.nov., *Vernonia bogotana* Cuatr., Bot. Jahrb. 77: 65. 1956.

CRITONIOPSIS BRACHYSTEPHANA (Cuatr.) H.Robinson, comb.nov., *Vernonia brachystephana* Cuatr., Bot. Jahrb. 77: 66. 1956.

CRITONIOPSIS CUATRECASASII H.Robinson, sp. nov.

Plantae arborescentes 6-8 m altae mediocriter ramosae in caulibus et superficiis inferioribus foliorum dense canescentiter vel cinerascentiter lepidotae. Folia alterna, petiolis 5-25 mm longis; laminae papyraceae rigidae ellipticae vel leviter obovatae plerumque 7-13 cm longae et 2.5-5.0 cm latae base cuneatae saepe subtiliter inaequales margine plerumque integrae distaliter interdum subserrulatae apice breviter acutae vel minute apiculatae supra glabrae nitidae vel in nervis primariis persistentiter leniter lepidotae minute reticulate prominulae subtus lepidotae in nervis majoribus aliquantum evanescentiter lepidotae, nervis secundariis utrinque ca. 6-10 a ca. 45° divaricatis leniter arcuatis. Inflorescentiae thyrsoideo-paniculatae terminales et in axillaribus foliorum superiorum in ramis dense corymbosae vel cymosae pauce minute anguste bracteiferae. Capitula 8-9 mm alta et ca. 5 mm lata in pedicellis 0-1 mm longis; squamae involucri 30-35 valde subimbricatae 1-6 mm longae et ad 1.5 mm latae interiores facile deciduae basilares canescentiter lepidotae aliter subglabrae et in partibus purpurascentes apice anguste rotundatae subscariosae margine pauce fimbriatae. Flores ca. 9-11 in capitulo; corollae lavandulae ca. 7 mm longae extus sparse glandulo-punctatae in apicibus loborum densiores, tubis ca. 3 mm longis anguste infundibularibus, faucibus ca. 1.5 mm longis infundibularibus base non demarcatis, lobis ca. 2.5 mm longis et 0.6 mm latis; thecae antherarum ca. 2 mm longae base vix appendiculatae; appendices antherarum ca. 0.6 mm longae et 0.2 mm latae glabrae; pili stylorum in parietibus incrassati rugulosi raro septati. Achaenia ca. 2.8 mm longa glandulo-punctata; setae pappi majores 35-40 ca. 4.5 mm longae apice leniter incrassatae, exteriores ca. 0.5-1.0 mm longae filiformes. Grana pollinis in diametro ca. 40 µm.

TYPE: COLOMBIA: Boyaca: La Uvita, subiendo por la carretera de Chita, 2900 m alt. Arbol 6-8 m. Hoja papirácea, rigídula, verde amarillenta brillante haz, verdoso cenicienta muy clara envés. Filarias purpuráceas hacia el extremo. Corollas lilas, claras. "blanquizco". 16 Sept. 1969. *J.Cuatrecasas & L.Rodriguez 27811* (Holotype, US). PARATYPE: COLOMBIA: Boyaca: La Uvita, subiendo por la carretera de Chita, 2900 m alt. Arbolito 6 m.

Hoja flexible, verde amarillento medio, brillante haz ceniciento envés. Involucro verdoso apagado con puntas parduscas. 16 Sept. 1969. *J.Cuatrecasas & L.Rodriguez 27808* (US).

The paratype seems to have more narrowly elliptical leaves and narrower more pubescent outer involucral bracts than the holotype.

CRITONIOPSIS ELBERTIANA (Cuatr.) H.Robinson, comb. nov., *Vernonia elbertiana* Cuatr., Bot. Jahrb. 77: 68. 1956.

CRITONIOPSIS FLORIBUNDA (H.B.K.) H.Robinson, comb. nov., *Vernonia floribunda* H.B.K., Nov. Gen. et Sp., ed folio 4: 30. 1818.

CRITONIOPSIS FRANCISCANA (Cuatr.) H.Robinson, comb. nov., *Vernonia franciscana* Cuatr., Bot. Jahrb. 77: 69. 1956.

CRITONIOPSIS GLANDULATA (Cuatr.) H.Robinson, comb. nov., *Vernonia glandulata* Cuatr., Bot. Jahrb. 77: 69. 1956.

CRITONIOPSIS HUAIRACAJANA (Hieron.) H.Robinson, comb. nov., *Vernonia huairacajana* Hieron., Bot. Jahrb. 19: 43. 1894.

CRITONIOPSIS HUILENSIS (Cuatr.) H.Robinson, comb. nov., *Vernonia huilensis* Cuatr., Bot. Jahrb. 77: 71. 1956.

CRITONIOPSIS JELSKII (Hieron.) H.Robinson, comb. nov., *Vernonia jelskii* Hieron., Bot. Jahrb. 36: 459. 1905.

CRITONIOPSIS KILLIPII (Cuatr.) H.Robinson, comb. nov., *Vernonia killipii* Cuatr., Bot. Jahrb. 77: 71. 1956.

Critoniopsis lindenii Sch.Bip., Jahresber. Pollichia 20-21: 431. 1863.

CRITONIOPSIS MUCIDA (Cuatr.) H.Robinson, comb. nov., *Vernonia mucida* Cuatr., Bot. Jahrb. 77: 72. 1956.

CRITONIOPSIS OCCIDENTALIS (Cuatr.) H.Robinson, comb. nov., *Vernonia occidentalis* Cuatr., Bot. Jahrb. 77: 73. 1956.

CRITONIOPSIS PALLIDA (Cuatr.) H.Robinson, comb. nov., *Vernonia pallida* Cuatr., Bot. Jahrb. 77: 74. 1956.

CRITONIOPSIS PENDULA (Cuatr.) H.Robinson, comb. nov., *Vernonia pendula* Cuatr., Bot. Jahrb. 77: 57. 1956.

CRITONIOPSIS PICHINCHENSIS (Cuatr.) H.Robinson, comb. nov., *Vernonia pichinchensis* Cuatr., Bot. Jahrb. 77: 76. 1956.

CRITONIOPSIS POPAYANENSIS (Cuatr.) H.Robinson, comb. nov.,

Vernonia popayanensis Cuatr., Bot. Jahrb. 77: 77. 1956.

CRITONIOPSIS PYCNANTHA (Benth.) H.Robinson, comb. nov., *Vernonia pycnantha* Benth., Pl. Hartw. 134. 1844.

CRITONIOPSIS SEVILLANA (Cuatr.) H.Robinson, comb. nov., *Vernonia sevillana* Cuatr., Bot. Jahrb. 77: 78. 1956.

CRITONIOPSIS SUAVEOLENS (H.B.K.) H.Robinson, comb. nov., *Vernonia suaveolens* H.B.K., Nov. Gen. et Sp. ed folio 4: 30. 1818.

CRITONIOPSIS TUNGURAHUAE (Benoist) H.Robinson, comb. nov., *Vernonia tungurahuae* Benoist, Bull. Soc. Bot. Fr. 83: 804. 1936.

CRITONIOPSIS UNGUICULATA (Cuatr.) H.Robinson, comb. nov., *Vernonia unguiculata* Cuatr., Bot. Jahrb. 77: 80. 1956.

CRITONIOPSIS UNIFLOSCULOSA (Cuatr.) H.Robinson, comb. nov., *Vernonia unifloscula* Cuatr., Bot. Jahrb. 77: 81. 1956.

CRITONIOPSIS URSICOLA (Cuatr.) H.Robinson, comb. nov., *Vernonia ursicola* Cuatr., Bot. Jahrb. 77: 82. 1956.

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ARNOGLOSSUM RENIFORME (Hook.) H.Robinson, comb. nov., *Senecio atriplicifolius* var. *reniformis* Hook., Fl. Bor. Amer. 1: 332. 1833. *Cacalia reniformis* Muhl. *ex* Willd., Sp. Pl. 3 (3): 1735. 1804, not *Cacalia reniformis* Lam., Fl. Fr. 2: 75. 1778. *Mesadenia reniformis* (Hook.) Raf., New Fl. 4: 79. 1838. The need for the new combination has been called to my attention by Steve Smith working on the revised edition of the National List of Scientific Plant Names. The name replaces *A. muhlenbergii*.

Critoniopsis cuatrecasasii H. Robinson, Holotype, United States National Herbarium. Photo by Victor E. Krantz, Staff Photographer, National Museum of Natural History.